REMARKS

In the Office Action, claims 1-60 were rejected. Applicants have canceled claim 4, and amended claims 1, 5, 17, 18, 32, 34, 46, and 55. These amendments do not add any new matter. Upon entry of the amendments, claims 1-3 and 5-60 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Rejections Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1-60 under U.S.C. § 103(a) as being unpatentable over DiRienzo U.S. Patent No. 6,006,191 (hereinafter "DiRienzo"). Applicants respectfully traverse these rejections.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to

pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

State of the prior art at the time of the invention.

Applicants believe DiRienzo fails to disclose all of the claimed elements of the current application and actually illustrates the limitations of the art at the time the current application was filed. Therefore, Applicants would like to respectfully remind the Examiner of the state of art at the time the current application was filed. Indeed, this state of the art is typified by the techniques described by DiRienzo. Applicants believe the disclosure of the current application accurately captures the state of the art at the time the application was filed. The disclosure states:

BACKGROUND OF THE INVENTION

Medical institutions and facilities offer an increasingly wide range of services and procedures to meet the needs of their patients and staff. Hospitals, clinics, and other medical institutions may include simple single-office clinics, or large integrated establishments comprised of a wide array of cooperating departments and facilities. Moreover, even smaller clinics may be partially or fully integrated into a larger institution at a single location, or geographically disbursed from one another. In all of these cases, information technology is becoming a key component in the exchange of data and services needed to carry out the mission of the facilities.

In a typical clinic or hospital, for example, a radiology department may dispose of various types of imaging systems, including magnetic resonance imaging (MRI) systems, computer tomography (CT) systems, ultrasound systems, x-ray systems, and so forth. Certain of these systems may be stationary, while others may be moved around the facility as needed. A radiology department informational system (RIS) may be interconnected with these various imaging systems to coordinate their operation, as well as to facilitate their review of images by radiologists and diagnosing physicians. In certain institutions, these various pieces of equipment may be interconnected in a network, typically in a local area network (LAN) architecture.

In addition to radiology equipment, various other equipment within a medical facility may be monitored or networked at a departmental or institutional level. Patient monitors, for example, may offer some degree of networking capability, allowing patients to be tracked and their physiological condition to be monitored remotely. Patient records, accounting records, and the like may similarly be associated in different individual systems, with certain of the information being cross-referenced in a hospital information system (HIS).

While certain of the equipment within a hospital or other medical institution can be designed to function completely independently of other equipment or service providers, many individual systems or subsystems are now designed to interactively communicate information with outside components. For example, in the diagnostic imaging field, individual systems are now commonly equipped with a modem by which they may transmit and receive image data, service information, reports, and so forth. In certain instances, operations personnel may log on to a network, such as the internet, or a virtual private network, to transmit and receive data directly from the imaging system. Other equipment within an institution may be similarly equipped for data communication, either individually or via a departmental work station or similar interface.

While individual networks within a medical facility may function adequately for most purposes, they pose certain problems on the level of coordination and delivery of data, and may strain the infrastructure of the institution. Depending upon the type of connections provided, for example, medical diagnostic imaging systems may each require a separate communications line to insure connectivity when needed. In a typical setting, these communication lines are conventional telephony cables which must be installed and maintained for the individual systems, even when the systems are not logged on to a network or transmitting data. When data is transmitted to or from individual pieces of equipment or individual LAN's of an institution, separate accounting may be required, and interface components must separately route the data to and from each system or piece of equipment connected to a LAN. Again, this procedure may require separate connection procedures via dedicated lines, adding not only to the overall cost of the system and infrastructure, but adding substantial time and additional steps to the data interchange process.

While some progress has been made toward linking individual networks and systems of medical institutions, further improvements are needed. *There is a particular need, at present, for a technique which would permit and coordinate the exchange of data among internal*

systems and networks of a medical facility, and with external resources, such as service providers. The need extends both to relatively small institutions or clinics, which may have a few pieces of medical diagnostic imaging equipment, to large integrated institutions in which entire departments may be served by outside resources and communicate with those resources completely independently from one another under present schemes. (emphasis added)

Application, page 1, line 13 through page 3, line 18

Furthermore, Applicants respectfully remind the Examiner the current application discloses a technique to improve data communications between a medical institution and a remote service provider. The medical institution having a plurality of clients coupled on an internal network. The disclosure states:

SUMMARY OF THE INVENTION

The present invention provides an improved data communications topology for a medical institution designed to respond to these needs. The technique of the invention offers rapid and effective data exchange within the institution, and facilitates transmission of data to a remote service provider, and routing of data from such a service provider to designated diagnostic systems of the institution. The technique may be equally well applied to existing facilities having partial or fully networked environments, and to institutions upgraded to offer such networking capabilities.

In accordance with the technique, a plurality of client diagnostic systems are connected to an internal network of the institution. A data communications control system permits data from the systems to be accessed via the internal network. The data may include service requests, requests for programs and software, requests for documentation and training materials, and so forth. The data is then transmitted to a remote service provider as needed, through a reduced number of connections and data transmission sessions. Data from the remote service provider is received by the control system and is distributed to designated diagnostic systems as desired. The technique offers enhanced connectivity, facilitates data access and transfer, and provides for improved interconnectivity of devices and systems of the institution.

Application, page 3, line 20 through page 4, line 11.

DiRienzo does not disclose a system for the rapid and effective data exchange between a remote provider and client on the internal network. DiRienzo instead discloses a system that *obtains* an image from a single imagining computer. The image is then used in a data exchange process completely isolated from the imaging computer. DiRienzo disclose this isolation by stating that the image can be obtained by placing the data on a compact disc read only memory (CD-ROM) or digital video disk (DVD) and sending the data via courier service. *See* DiRienzo, Col 19, lines 20-22. Sending an image via a courier system in no way establishes a rapid and effective data exchange between a remote provider and client on the internal network.

Furthermore, an isolated, single imagining computer is not an internal network having a plurality of modalities. As discussed in the present application, and as pointed out above, prior to the invention, imaging systems in hospitals and other medical institutions were connected to outside, remote providers, if at all, by separate, dedicated network links, typically telephone modem links. Such connection severely limited the proliferation of services to such systems via the Internet and other networks. No one before the invention was made, coupled imaging systems of different modalities to remote providers, as claimed. Therefore, Applicants believe DiRienzo is a good illustration of the problem the current invention solves by allowing a remote provider to transmit data to and receive data from an internal network that includes a plurality of modalities. DiRienzo does not disclose such a system and is not concerned with any communications with the modality beyond obtaining the image.

Independent Claim #1: DiRienzo does not teach an internal network having a plurality of modalities or the data communications control system.

In formulating the rejection for claim 1, the Examiner stated the following:

As per claim 1, DiRienzo teaches a medical facility data communications system, the system comprising:

--the claimed internal data communications network is met by the use of digital communication links such as Ethernet (see: column 19, lines 35-42);

--the claimed plurality of clients coupled to the internal network and uniquely addressed on the internal network is met by the different clients such as the CHC (200, Fig, 3) connected to the diagnostic physician's office (400, Fig. 3) and the gatekeeper's office (500, Fig. 2) via different types of networks (see: column 19, lines 25-49) this suggests that while using different networks such as the Intranet all addresses are unique.

DiRienzo teaches a method of transmitting data requests and requested data between a medical diagnostic facility (e.g. diagnostic reading site), a remote data provider (e.g. CHC) and one or more physician at a diagnostic reading site (i.e. medical diagnostic facility) connected to a network in order to review data (see: column 26, lines 45-56).

DiRienzo fails to explicitly teach the claimed data communications control system coupled to the internal network.

However DiRienzo teaches the transmission of data between the medical diagnostic facility and the CHC (i.e. the remote provider) via a network requires the use of a network/communication interface (e.g. the recited data communication control system), and thus obviates the step of providing a data communications control system coupled to the internal network. Furthermore, at the time of the Applicant's invention, it would have been obvious to one of ordinary skill in the art to include network/communication interface (e.g. the recited data communication control system) within the data transmission as taught by DiRienzo with the motivation of assisting in the transmission process by facilitating the reliability of physician accessing and reviewing patient data.

Office Action, page 3.

Applicants have amended claim 1 to recite, "a plurality of clients coupled to the internal network and uniquely addressed on the internal network, the clients include a plurality of medical diagnostic imaging modalities configured to produce image data." DiRienzo fails to disclose an internal network whose clients include a plurality of modalities.

The Examiner stated that the claimed internal network is disclosed by the CHC (200, Fig, 3) connected to the diagnostic physician office (400, Fig. 3) and the gatekeeper office (500, Fig. 2). The network described by the Examiner fails to include a medical diagnostic imaging modality at all. Furthermore, and *a fortiori*, it would not have been obvious to include a plurality of modalities in the DiRienzo system, as DiRienzo is clearly unrelated to coupling diagnostic imaging systems themselves to networks. DiRienzo specifically teaches away from this by isolating the single imaging computer outside of this internal network. In this sense, DiRienzo describes the same type system improved upon by the networked arrangement of the invention. Thus, DiRienzo does not disclose an internal network having a plurality of clients, the clients including a plurality of modalities.

Furthermore, the Examiner correctly stated that DiRienzo fails to disclose the data communications control system ("DCCS"). The Examiner then stated

> DiRienzo teaches the transmission of data between the medical diagnostic facility and the CHC (i.e. the remote provider) via a network requires the use of a network/communication interface (e.g. the recited data communication control system), and thus obviates the step of providing a data communications control system coupled to the internal network.

The Examiner's analysis is flawed because the DCCS is more than a simple network/communications interface. The data communications control system is described to include a variety of hardware components and functional circuitry. Application, Fig. 2, page 10, lines 8-16. The network/communication interface disclosed in DiRienzo is a modem using conventional phone lines. The DCCS is much more complex than a modem, and the DCCS functionality would not be obviated by a simple network/communication interface.

The Examiner further stated,

> Furthermore, at the time of the Applicant's invention, it would have been obvious to one of ordinary skill in the art to include network/communication interface (e.g. the recited data communication control system) within the data transmission as taught by DiRienzo with the motivation of assisting in the transmission process by facilitating the reliability of physician accessing and reviewing patient data.

As stated above, the DCCS is much more then a simple network/communications interface. Furthermore, the DCCS would not have been obvious to one skilled in the art and the Examiner has failed to offer a reasoned analysis contrary to this position. Thus, Applicants believe that the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Dependent Claim 4: DiRienzo teaches images selected from different modalities but does not teach multiple modalities coupled to the internal network.

Claim 4 has been canceled and its subject matter has effectively been incorporated into claim 1. In the rejection of claim 4, the Examiner stated, "DiRienzo teaches that many diagnostic instrumentalities produce 'diagnostic medical images'". Office Action, page 5. As stated above, DiRienzo does not disclose "a plurality of clients coupled to the internal network and uniquely addressed on the internal network, the clients include a plurality of modalities configured to produce image data." Instead, DiRienzo discloses that the image may be selected from different diagnostic instrumentalities. An image cannot be a client on an internal network, thus the *image itself* is not equivalent to a modality. Therefore, the "diagnostic medical images" taught in DiRienzo are not equivalent and do not make obvious a plurality of modailites coupled to an internal network.

At the risk of oversimplifying the analysis and comparison made here, the
Applicants may offer the following analogy. The claimed modalities produce image data
just as production lines in a factory may produce different products. These modalities are
coupled to the claimed DCCS for communication to external resources. DiRienzo, at
best, teaches that goods from *different* factories (actually only one is described) can be
sold in the same market (DiRienzo's clearinghouse). That clearinghouse or market,
however, is already external to the production facility, i.e., the factory or medical
institution. DiRienzo simply does not foresee or teach different diagnostic imaging
modalities in a medical institution coupled to any component similar to a DCCS for
external communication.

Independent Claim 17: DiRienzo does not teach an internal network having a plurality of modalities or the data communications control system.

In formulating the rejection for claim 17, the Examiner stated the following:

> As per claims 17, DiRienzo teaches a data communications system
> for a medical diagnostic facility, the system comprising:
> --the claimed plurality of clients linked to an internal network, the
> clients including a medical diagnostic imaging system is met by the
> different clients such as the CHC (200, Fig. 3) connected to the diagnostic
> physician's office (400, Fig. 3) and the gatekeeper's office (500, Fig. 2)
> via different types of networks (see: column 19, lines 25-49).
> DiRienzo teaches a method of transmitting data requests and
> requested data between a medical diagnostic facility (e.g. diagnostic
> reading site), a remote data provider (e.g. CHC) and one or more physician
> at a diagnostic reading site (i.e. medical diagnostic facility) connected to a
> network in order to review data (see: column 26, lines 45-56). In addition,
> DiRienzo teaches the use of digital communication links such as Ethernet
> (see: column 19, lines 35-42).
> DiRienzo fails to explicitly teach the claimed data communications
> control system linked to the internal network.
> However, DiRienzo teaches the transmission of data between the
> medical diagnostic facility and the CHC (i.e. the remote provider) via a
> network requires the use of a network/communication interface (e.g. the
> recited data communication control system), and thus obviates the step of
> providing data communications control system coupled to the internal

network. Furthermore, at the time of the Applicant's invention, it would have been obvious to one of ordinary skill in the art to include network/communication interface (e.g. the recited data communication control system) within the data transmission as taught by DiRienzo with the motivation of assisting in the transmission process by facilitating the reliability of physician accessing and reviewing patient data..

Office Action, page 8.

Applicants have amended claim 17 to recite, "a plurality of clients linked to an internal network, the clients including a plurality of medical diagnostic imaging modalities." The Examiner stated the same basis for the rejection of claim 17 as used for claim 1. Thus, for the same reasons discussed with regards to claim 1, Applicants believe the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Independent Claim 32: DiRienzo does not teach an internal network having a plurality of modalities or the data communications control system.

In formulating the rejection for claim 32, the Examiner stated the following:

As per claim 32, DiRienzo teaches a communications system for a medical diagnostic facility, the system comprising:
--the claimed internal network is met by the use of digital communication links such as Ethernet (see: column 19, lines 35-42);
--the claimed plurality of clients configured for connection to the network for transmission of client data. This feature is met by the different clients such as the CHC (200, Fig. 3) connected to the diagnostic physician's office (400, Fig. 3) and the gatekeeper's office (500, Fig. 2) via different types of networks (see: column 19, lines 25-49).
DiRienzo teaches a method of transmitting data requests and requested data between a medical diagnostic facility (e.g. diagnostic reading site), a remote data provider (e.g. CHC) and one or more physician at a diagnostic reading site (i.e. medical diagnostic facility) connected to a network in order to review data (see: column 26, lines 45-56). In addition, DiRienzo teaches the use of digital communication links such as Ethernet (see: column 19, lines 35-42).

DiRienzo fails to explicitly teach the clients including a physically mobile client as well as the data communications control system being configured to automatically access client data including data indicative of a location of the mobile client and data communication control system coupled to the internal network.

It is well known in computer medical industry that using a portable computer allows access the Internet. Therefore, it would have been obvious to one having ordinary skill in the art at the time invention was made to either use a portable computer or a hard wired computer within the data transmission as taught by DiRienzo with the motivation of assisting the users with accessing and retrieving information on the Internet, thereby facilitating the approach of gathering information through over a network in a less time consuming and efficient manner. In addition, DiRienzo teaches the transmission of data between the medical diagnostic facility and the CHC (i.e. the remote provider) via a network requires the use of a network/communication interface (e.g. the recited data communication control system), and thus obviates the step of providing a data communications control system coupled to the internal network. Furthermore, at the time of the Applicant's invention, it would have been obvious to one of ordinary skill in the art to include network/communication interface (e.g. the recited data communication control system) configured to automatically access client data within the data transmission as taught by DiRienzo with the motivation of assisting in the transmission process by facilitating the reliability of physician accessing and reviewing patient data.

Office Action, page 12.

Applicants have amended claim 32 to include, "the clients including a physically mobile client and a plurality of medical diagnostic imaging modalities." Here again, the Examiner effectively stated the same rejection for claim 32 as used for claim 1. Thus, for the same reasons discussed with regards to claim 1, Applicants believe the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Independent Claim 46: DiRienzo does not teach an internal network having a
plurality of modalities or the data communications control system.

In formulating the rejection for claim 46, the Examiner stated the following:

> As per claim 46, DiRienzo teaches a method of transmitting data
> requests and requested data between a medical diagnostic facility (e.g.
> diagnostic reading site), a remote data provider (e.g. CHC) and one or
> more physician at a diagnostic reading site (i.e. medical diagnostic facility)
> connected to a network in order to review data (column 26, lines 45-56).
> In addition, DiRienzo teaches the RAMIZ system (100, Fig. 3), which
> receives, stores and downloads medical images requiring diagnostic
> readings and receives, stores and transmits reports regarding the diagnostic
> readings performed on the medical images (see: column 18, lines 37-42).
> DiRienzo fails to explicitly teach the claimed data communications
> control system.
> However, DiRienzo teaches the transmission of data between the
> medical diagnostic facility and the CHC (i.e. the remote provider) via a
> network requires the use of a network/communication interface (e.g. the
> recited data communication control system), and thus obviates the step of
> providing a data communications control system coupled to the internal
> network. Furthermore, at the time of the Applicant's invention, it would
> have been obvious to one of ordinary skill in the art to include
> network/communication interface (e.g. the recited data communication
> control system) configured to store and execute communications interface
> within the data transmission as taught by DiRienzo with the motivation of
> assisting in the transmission process by facilitating the reliability of
> physician accessing and reviewing patient data.

Office Action, page 17.

Applicants have amended claim 46 to include, "transmitting client data from a
plurality of networked clients to a data communications control system via an internal
network, the clients including a plurality of medical diagnostic imaging modalities." The
Examiner stated the same rejection for claim 46 as used for claim 1. Thus, for the same
reasons discussed with regards to claim 1, Applicants believe the Examiner has failed to
establish a *prima facie* case of obviousness and respectfully traverse the rejection. For

these reasons, Applicants respectfully request withdrawal of the rejections under 35

U.S.C. § 103(a).

*Independent Claim 55: DiRienzo does not teach an internal network having a
plurality of modalities or the data communications control system.*

> As per claim 55, DiRienzo teaches a method of transmitting data
> requests and requested data between a medical diagnostic facility (e.g.
> diagnostic reading site), a remote data provider (e.g. CHC) and one or
> more physician at a diagnostic reading site (i.e. medical diagnostic facility)
> connected to a network in order to review data (see: column 26, lines 45-
> 56).
> DiaRienzo fails to explicitly teach the claimed clients including at
> least one physically mobile client and transmitting client data from the
> clients to a data communications control system, the client data including
> at least data indicative of a location of the at least one mobile client.
> It is well known in computer medical industry that using a portable
> computer allows access the Internet. Therefore, it would have been
> obvious to one having ordinary skill in the art at the time invention was
> made to either use a portable computer or a hard wired computer within
> the data transmission as taught by DiRienzo with the motivation of
> assisting the users with accessing and retrieving information on the
> Internet, thereby facilitating the approach of gathering information through
> over a network in a less time consuming and efficient manner. In addition,
> DiRienzo teaches the transmission of data between the medical diagnostic
> facility and the CHC (i.e. the remote provider) via a network requires the
> use of a network/communication interface (e.g. the recited data
> communication control system), and thus obviates the step of providing a
> data communications control system coupled to the internal network.
> Furthermore, at the time of the Applicant's invention, it would have been
> obvious to one of ordinary skill in the art to include
> network/communication interface (e.g. the recited data communication
> control system) configured to automatically access client data within the
> data transmission as taught by DiRienzo with the motivation of assisting in
> the transmission process by facilitating the reliability of physician
> accessing and reviewing patient data.

Office Action, page 20.

Applicants have amended claim 55 to include, "coupling a plurality of clients to an

internal network, the clients including at least one physically mobile client and a plurality

of medical diagnostic imaging modalities." Again for claim 55, the Examiner effectively stated the same rejection as used for claim 1. Thus, for the same reasons discussed with regards to claim 1, Applicants believe the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

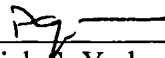### *Rejection of dependent claims.*

As discussed above, Applicants believe the Examiner has failed to establish a *prima facie* case of obviousness of independent claims 1, 17, 32, 46, and 55. Therefore, Applicants traverse the rejection of the dependents claims based on their dependency on an allowable independent claim. In making the rejection, the Examiner relied on a combination DiRienzo. As discussed above, DiRienzo fails to teach all the elements of independent claims. For this reason, Applicants respectfully request withdrawal of the rejections of all dependent claims under 35 U.S.C. § 103(a).

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: _____8 /2/ 2 0 0 6_____

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